

Amendment and Response under 37 C.F.R. 1.116

Applicant: Thomas H. Ottenheimer

Serial No.: 10/601,150

Filed: June 20, 2003

Docket No.: 10019119-4

Title: SLOTTED SUBSTRATE AND METHOD OF MAKING

IN THE CLAIMS

Please cancel claim 25 without prejudice.

Please amend claims 10, 24, and 26 as follows:

1. (Previously Presented) A print head comprising:

a slot received in a substrate between a first substrate surface and a second substrate surface, the slot having a central region and one or more terminal regions, the slot extending along a long axis that does not intersect the first surface or the second surface and that extends through at least a portion of the central region and the one or more terminal regions, the central region extending, at least in part, along a pair of sidewalls, and individual terminal regions being defined by a terminal sidewall at least a portion of which extends away from both sidewalls of the central region.

2. (Original) The print head of claim 1, wherein the one or more terminal regions comprises two terminal regions.

3. (Original) The print head of claim 2, wherein portions of each of the terminal regions extend away from both sidewalls of the central region.

4. (Original) The print head of claim 1, wherein individual sidewalls of the pair of sidewalls are generally parallel to one another.

5. (Original) The print head of claim 1, wherein at least a portion of the terminal sidewall is generally perpendicular to both sidewalls of the central region.

6. (Original) The print head of claim 1, wherein at least a portion of the terminal sidewall extends arcuately away from both sidewalls of the central region when viewed from above a first substrate surface.

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7. (Original) The print head of claim 1, wherein individual terminal regions are generally circular when viewed from above a first substrate surface.

8. (Original) The print head of claim 1, wherein individual terminal regions are generally rectangular when viewed from above a first substrate surface.

9. (Original) A print cartridge incorporating the print head of claim 1.

10. (Currently Amended) A slotted substrate for use in a fluid ejecting device comprising:

a substrate; and

a slot received in the substrate and extending between a first substrate surface and a second substrate surface, the slot having a central region and two or more terminal regions, the central region extending at least in part along a pair of sidewalls, individual terminal regions being defined by a terminal sidewall at least a portion of which extends away from both sidewalls of the central region, wherein the two or more terminal regions are terminally joined with a common sidewall, and wherein the central region and the at least two terminal regions are oriented such that the an axis can pass through the central region and at least two of the terminal regions without intersecting either of the first substrate surface or the second substrate surface.

11. (Original) The slotted substrate of claim 10, wherein at least a portion of an individual terminal sidewall is generally perpendicular to both sidewalls of the central region.

12. (Previously Presented) A structure comprising:

a substrate extending between a first surface and a generally opposing second surface;
a slot portion received in the substrate and extending along a long axis which is generally parallel to the first and second surfaces, the slot portion having a central region and a pair of terminal regions through which the long axis passes without intersecting either of the first and second surfaces; and,

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the central region extending along a pair of sidewalls that lie along individual planes that are generally parallel, the planes defining a space therebetween, and at least one terminal region of the slot portion being defined, at least in part, by one or more sub-regions that lie outside of the space between the planes.

13. (Original) The structure of claim 12, wherein the slot portion comprises a slot that extends entirely through the substrate.

14. (Original) The structure of claim 12, wherein individual sub-regions lie on opposite sides of the planes.

15. (Original) The structure of claim 12, wherein the terminal regions are generally circular when viewed from above the first surface.

16. (Original) A print cartridge incorporating the structure of claim 12.

17. (Previously Presented) A print head comprising:
a substrate extending between a first surface and a generally opposing second surface;
and

a slot received in the substrate and having a central region and a pair of terminal regions, and wherein a line extending through the first and second surfaces can pass through the central region without passing through individual terminal regions, the central region extending along a pair of sidewalls which extend between the first surface and the second surface and that lie along individual planes that are generally parallel, the planes defining a space therebetween, and at least one terminal region of the slot being defined, at least in part, by one or more sub-regions that lie outside of the space between the planes.

18. (Original) A print cartridge incorporating the print head of claim 17.

19. (Previously Presented) A slotted substrate comprising:
a substrate extending between generally opposing first and second surfaces;

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a slot received in the substrate and extending along a long axis which does not intercept either of the first and second surfaces, the slot having a central region and one or more terminal regions through which the long axis extends, the central region extending, at least in part, along a pair of sidewalls, and individual terminal regions being defined by a terminal sidewall at least a portion of which extends away from a sidewall of the central region at an angle of greater than 180 degrees.

20. (Original) The slotted substrate of claim 19, wherein the portion of the terminal sidewall is planar.

21. (Original) The slotted substrate of claim 19, wherein the portion of the terminal sidewall is arcuate.

22. (Original) A print cartridge incorporating the slotted substrate of claim 19.

23. (Original) A fluid ejecting device incorporating the slotted substrate of claim 19.

24. (Currently Amended) A substrate having fluid handling slots comprising:
a substrate;

a slot portion received in the substrate and between first and second surfaces, the slot portion having a central region and a pair of terminal regions, and extending along an axis passing through the central region and the terminal regions without intersecting the first and second surfaces;

the central region extending along a pair of sidewalls that lie along individual planes that are generally parallel, the planes defining a space therebetween; and,

at least one terminal region of the slot portion being defined at least in part by one or more sub-regions that lie outside of the space between the planes, and wherein the terminal regions are generally sickle-shaped.

25. (Cancelled)

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26. (Currently Amended) ~~The fluid-ejecting device of claim 25~~ A fluid ejecting device comprising:

a substrate having a thickness defined by generally opposing first and second surfaces; and

one or more fluid feed slots received in the substrate, wherein individual fluid feed slots include a central region that is defined in at least the first surface by generally opposing side walls, and wherein individual fluid feed slots are further defined by two generally opposing terminal regions extending along the first surface from two ends of the central region,

wherein each of the terminal regions is generally circular in shape and each has a diameter greater than a width between the generally opposing side walls.

27. (Previously Presented) The fluid ejecting device of claim 26, wherein the diameter of the terminal region is at least about 2 times the width between the generally opposing sidewalls.

28. (Previously Presented) A slotted substrate for use in a fluid ejecting device comprising:

a substrate;

a slot received in the substrate and having a central region and one or more terminal regions contiguous with the central region;

the central region having a width taken generally orthogonal to a long axis of the slot; and,

individual terminal regions being defined by a radius of curvature that is greater than one half of the width of the terminal region.

29. (Previously Presented) The slotted substrate of claim 28, wherein the radius of curvature is greater than or equal to the width of the central region.

30. (Previously Presented) A printing device comprising, at least in part, a slotted substrate formed in accordance with the method of claim 28.

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31. (Previously Presented) A print cartridge comprising, at least in part, a slotted substrate formed in accordance with the method of claim 28.

32. (Previously Presented) The print head of claim 1, wherein the long axis is parallel to the first and second surfaces.